



## DEPARTMENT OF THE AIR FORCE

HEADQUARTERS AERONAUTICAL SYSTEMS CENTER (AFMC)  
WRIGHT-PATTERSON AIR FORCE BASE, OHIO

MEMORANDUM FOR MTMC/TEA (Lloyd Cato)  
720 THIMBLE SHOALS BLVD STE 130  
NEWPORT NEWS VA 23606-2574

17 August 2003

FROM: ASC/ENFC (ATTLA)  
2530 Loop Road West  
Wright Patterson AFB, OH 45433-7101

SUBJECT: Air Transport Certification of Deployable Universal Combat Earthmover (DEUCE)

*Note: This memo supersedes our previous of 04 June 99 and message of 14 March 2001.*

1. References:

- a) MTMC/TEA MTTE-DP-DIV, DEUCE Transportability Report, 18 May 1999
- b) TACOM AMSTA-DSA-TA-CE, DEUCE C-130 Tests at Ft Bragg, 20 June 2001
- c) WRALC/LBRA, Structural Analysis for Loading DEUCE onto C-130E/H, 28 Sept 2001

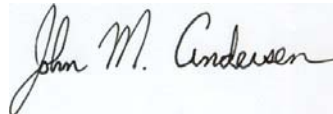
2 The Caterpillar DEUCE is defined to be a rubber tracked bulldozer measuring 230" long, 93.5" wide (with a 116" wide blade), and is 108.2" high. The approximate weight is 35,750 lbs.

2. The DEUCE as defined above is approved for airlift on C-130, C/CC-130J, C-141, C-5, and C-17 aircraft with the following provisions:

- a. The blade should be angled to 25° to reduce blade projection width to 107".
- b. For C-130 transport of DEUCE without blade castor wheels, the vehicle shall have the operator's cab removed. The cab shall be palletized for transport using standard procedures. The unkneeled DEUCE with blade elevated, should be carefully backed into the aircraft using 5 inch thick rolling/parking shoring. Lower the blade onto the shoring for flight.
- c. For C-130 transport of DEUCE with blade castor wheels, reduce the overall height to the top of the cab to 102 inches by kneeling the vehicle per the manufacturer's instructions and inserting the locking pins in the hydraulic mechanism. Also lower the upper hinged grab handle bars at the rear of the machine. ALBION CASTER wheels part number 94 PY 10701 STRL diameter 10 inches and width 4 inches shall be attached to the corners of the blade to support the blade weight. With blade lowered onto the wheels, the kneeled DEUCE should be carefully backed into the aircraft using the shoring kit in attachment 1 (6 pages).
- d. For C-141 transport, kneel the DEUCE as described in para c and back it into the aircraft with the blade elevated (castor wheels not required). Shoring thickness shall be 2 inches minimum. Lower the blade onto the shoring for flight.
- e. C-130 and C-141 floor loading limits require shipper supplied rolling and parking shoring of the thickness described above for placement under each track. The minimum required shoring width is 30 inches. Shoring thickness should be tapered about 10 degrees at the ramp hinge to reduce teeter loads over the hinge area.
- f. It is recommended that the vehicle be winched aboard the C-130 and C-141 with the engine operating as needed to provide steering, braking, etc. At the loadmaster's discretion, the vehicle may be backed aboard under power provided that the operator can compensate for natural drift and potential side swing as the ramp is crested.

- g. For C-17 and C-5 airlift, the DEUCE may be loaded using standard procedures for rolling stock. Rolling/parking shoring is not required, but the blade shall be supported on floor protection shoring for flight. The shipper-supplied shoring should provide a footprint area of at least 70 in <sup>2</sup> to support the blade.
- f. Any hazardous materials shall be in compliance with AFJMAN 24-204/TM 38-250. Limit fuel in the vehicle to ½ tank or less. This memo is not to be considered approval for shipment of hazardous materials, which must be granted separately. The servicing aerial port can assist in this regard.
- g. The vehicle shall be restrained to 3G fwd, 2G up, and 1.5G aft and lateral using the available tiedown points on the frame. The shipper shall certify that any auxiliary equipment or stowed components are capable of withstanding these forces as well as a potential 4.5G download.

3. A copy of this letter shall accompany the vehicle when it is presented for transport. The air transportability engineer for this project is the undersigned at DSN 785-2330 or (937) 255-2330. The email address is [john.andersen@wpafb.af.mil](mailto:john.andersen@wpafb.af.mil). Please refer to project file 99.05.18



John M. Andersen  
Aerial Delivery Group  
Crew Systems Branch

Comment:

Attachment 1 (6 pages)

cc:

HQ AMC/DOV

WR-ALC/LBRA

TACOM AMSTA-DSA-TA-CE